

Supplemental Table 1. Motor, cognitive and imaging findings of clinical cases of *PSEN1*-related parkinsonian phenotype

Reference	Motor dysfunction	Cognition	SPECT with loflupane (123I)	FDG-PET	PiB-PET or 18 F-flutemetamol PET/CT	Responsiveness to levodopa	<i>PSEN1</i> genetic variant (NM_000021.4)
Takao et al., ¹ 2002	Progressive parkinsonism, with pseudobulbar and pyramidal signs	Early-onset dementia	Not available	Not available	Not available	Not available	c.650G>A (p.Gly217Asp)
	Progressive parkinsonism, with pseudobulbar and pyramidal signs	Early-onset dementia	Not available	Not available	Not available	Mild response, but severe adverse effects	c.650G>A (p.Gly217Asp)
Ishikawa et al., ² 2005	Progressive parkinsonism, with dystonia	Dementia	Not available	Not available	Not available	Good response to levodopa, with end-of-dose wearing off and levodopa-induced dyskinesia	c.1318_1320del (p.Thr440del)
Carecchio et al., ³ 2017	Progressive dystonia-parkinsonism (bradykinesia and rigidity), with pyramidal signs in lower limbs	Early-onset dementia	Severe nigrostriatal dopaminergic deficit bilaterally (> putamen)	Severe striatal and posterior cingulate hypometabolism	Not available	Initially good response to levodopa on bradykinesia and rigidity. No more responsiveness when parkinsonism progressed	c.508T>C (p.Ser170Pro) De novo
Giau et al., ⁴ 2018	Parkinsonism, with generalized bradykinesia, mild lateralized rigidity, and stooped posture	MMSE = 28/30, CDR = 1.0	Not available	Diffuse hypometabolism in the whole cerebral cortices, particularly in the bilateral parietal cortices	Diffuse PiB uptake in the whole cerebral grey matter, including the cerebellum and the frontal, parietal, and temporal cortices	Not available	c.1250G>C (p.Gly417Ala)
Gatto et al., ⁵ 2020	Progressive asymmetric rest tremor, bradykinesia, and rigidity (left hemibody)	MMSE = 24/30, CDR = 0.5	Not available	Mild left lateral temporal lobe hypometabolism	Absence of PiB signal in cortical areas	Not available	c.123A>T (p.Arg41Ser)
Chen et al., ⁶ 2022	Progressive slow gait and bilateral stiffness (left > right), no tremor	MMSE = 26/30, CDR = 0.5	Nigrostriatal dopaminergic deficit in the bilateral putamen and caudate nucleus (right > left)	Bilateral putamen and caudate nucleus hypometabolism	Deposition of β -amyloid protein in the striatum, thalamus, and cerebral cortex	Good response to levodopa, with end-of-dose wearing off and levodopa-induced dyskinesia	c.697A>G (p.Met233Val) De novo
Our study	Lower limbs dystonia, gait impairment, rest and postural right-hand tremor, mild spontaneous and sensory-induced myoclonus, global and symmetric bradykinesia	MMSE = 28/30, CDR = 0.5	Moderate nigrostriatal dopaminergic deficit in the striatum (right > left)	Symmetrical cerebellar hypometabolism	Deposition of β -amyloid in the cortical layer of the frontal cortex bilaterally	Partial response to levodopa. Pramipexole caused ICD	c.121_124dup (p.Arg42Glnfs*8)

SPECT, single photon emission computed tomography; FDG, 18-Fluorodeoxyglucose; PET, positron emission tomography; CT, computed tomography; MMSE, Mini Mental State Evaluation; CDR, Clinical Dementia Rating scale; ICD, impulsive compulsive disorder; PiB, Pittsburgh Compound B.

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